

Study Programme: Master academic studies of forensics			
Course Unit Title: Nuclear Safety and Nuclear Forensics			
Course Unit Code: OF-13			
Name of Lecturer(s): Associate Professor Jovana Nikolov			
Type and Level of Studies: Master Academic Degree			
Course Status (compulsory/elective): Elective			
Semester (winter/summer): Summer			
Language of instruction: English			
Mode of course unit delivery (face-to-face/distance learning): Face-to-face			
Number of ECTS Allocated: 6			
Prerequisites: None			
Course Aims: Introduction to the main aspects of nuclear safety and nuclear security. Understanding of the basic principles of nuclear forensic science and specificity of forensics' acting in the case of presence of nuclear or other radioactive material on the crime scene.			
Learning Outcomes: Upon successful finishing of this course students are able to meet the needs of forensics in the following: <ol style="list-style-type: none"> 1. adequately identify cases that may be related to the damaging of the nuclear safety/security of the state or region; 2. recommending and providing adequate analysis in the case of finding nuclear or other radioactive material out of the regulatory control (MORC); 3. implementation of the appropriate methods of response to the nuclear threat recommended by international organizations responsible for nuclear safety and security; 4. reliably, precisely and accurately assess the extent to which the incident is dangerous and complex and accordingly make nuclear analytical plan for further action. 			
Syllabus: <i>Theory</i> Nuclear safety and nuclear security. Overview of national and international regulation on nuclear safety/security. Nuclear safety and nuclear security treats. Regulatory control and materials out of regulatory control (MORC). Nuclear forensics science. Nuclear materials and radioactive sources. Nuclear weapon. Nuclear and radiological objects. The main principles of providing of nuclear safety and detection and response to a nuclear security treat. Nuclear analytical plan. <i>Practice</i> Demonstration of the basic radiological detection techniques. Practical exercise: preparation of nuclear analytical plan taking in account the regulatory framework of nuclear safety and nuclear security.			
Required Reading: 1. FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, INTERNATIONAL ATOMIC ENERGY AGENCY, INTERNATIONAL LABOUR ORGANIZATION, OECD/NUCLEAR ENERGY AGENCY, PAN AMERICAN HEALTH ORGANIZATION, WORLD HEALTH ORGANIZATION, International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources, Safety Series No. 115, Vienna (1996). 2. INTERNATIONAL ATOMIC ENERGY AGENCY, Arrangements for Preparedness for a Nuclear or Radiological Emergency, IAEA Safety Standards Series No. GS-G-2.1, IAEA, Vienna (2006). 3. INTERNATIONAL ATOMIC ENERGY AGENCY, Code of Conduct on the Safety and Security of Radioactive Sources, IAEA/CODEOC/2001, IAEA, Vienna (2001). 4. INTERNATIONAL ATOMIC ENERGY AGENCY, Combating Illicit Trafficking in Nuclear and other Radioactive Material, IAEA Nuclear Security Series No. 6, Vienna (2007).			
Weekly Contact Hours: 5 (75)		Lectures: 2 (30)	Practical work: 2+1 (30+15)
Teaching Methods: Lectures, laboratory exercises and mentoring.			
Knowledge Assessment (maximum of 100 points): 100			
Pre-exam obligations	points	Final exam	points
Active class participation	10	written exam	20
Practical work	30	oral exam	10
Seminar(s)	30		